



Casalduni 34.7 MW Wind Farm, Campania, Italy

Parco Eolico Casalduni House S.r.l.

Contact



Fichtner Italia S.r.l.
Via XII Ottobre 2/41
16121 Genova

Foro Bonaparte 55
20121 Milano

www.fichtner.de/en/



Francesco Gennaro
+39 010 5956 902 ext 209
francesco.gennaro@fichtner.it

Fichtner Italia Srl



Matteo Canevello
+39 010 5956902
+39 347 7796328
matteo.canevello@fichtner.it

Fichtner Italia S.r.l.

Document approval

	Name	Signature	Position	Date
Prepared by:	M. Canevello		Consultant Engineer	11.04.2023
Checked by:	F. Gennaro		Project Manager	14.04.2023

Document revision record

Rev.	Date	Details of revision	Fichtner Doc Ref.	Prepared by	Checked by
0	14.04.2023	Rev. 0	RP 23 084_F454	Fichtner Italia	Fichtner Italia

Disclaimer

This document has been prepared by Fichtner within the framework of a Contract which defines the scope and use of such document as well as the responsibilities borne by Fichtner with respect to the information contained therein. The distribution of this document to different parties and/or the application of the document or of the information contained therein to a different scope or use as provided for in the Contract is forbidden and Fichtner shall not be responsible for such other scope or use. Should the documents be even partially modified, the use of the Fichtner logo, formats and letterheads is prohibited.

Note

Unless differently stated, this Report has been prepared on the basis of the information gathered and/or project documents reviewed up to the cut-off date of March 31, 2023.

Table of Contents

- 1 Executive Summary.....5
- 2 Background.....6
- 3 Introduction.....7
- 4 Contractual structure.....8
 - 4.1 Project Organizational Chart.....9
- 5 Overall Project schedule 10
- 6 Project Progress 13
- 7 Budget..... 15
- 8 Permitting and Lands rights..... 16
 - 8.1 Permitting..... 16
 - 8.2 Lands rights..... 16
- 9 HSE 17
- 10 Site Visit..... 18
- 11 Pictures 19
 - Key References..... 22
 - Abbreviations 23

1 Executive Summary

This construction report covers the period of March 2023 (the "Reference Period") and provides information on the status of the main construction activities, based on the documents made available by the Project Company on April 03, 2023, the Site Visit performed on April 05, 2023 and the Q&A sessions.

Overall Progress

In the Reference Period, in accordance with the main planned works, the following activities have been observed:

- The transportation and installation kick-off started during the Reference Period: WTG 09 has completed the installation except for the blades; WTG 08, 10 and 11 installed until T3, all the component on site except for the blades; WTG 13 all the component on site except for the blades.
- During the Reference Period the pouring of the WTGs G05, G04 and G03 was done. Load test successfully completed on the second cluster of WTGs.
- MV cables installation is ongoing, during the Reference Period work was concentrated in the first section (1.7 km out of 8.1 km).
- The MV switchgears installation is planned in mid-April. Minor civil works in the SSE are ongoing at the date of the issuance of this report.

Budget

The TA confirms that the "WTG Foundation 100% completed" milestone has technically occurred, and the relevant milestone payment from Renexia Services as EPC contractor has been made on March 28, 2023 (see also LT 23 077_F454 - Casalduni WF_n.13 Draw Down Certificate-signed. dated March 31, 2023).

Permitting and Land acquisition/concession

No updates in the Reference Period.

HSE

Nothing to report in the Reference Period.

Site Visit

During the site visit performed by the TA on April 05, 2023 no relevant risks have been noted. The main outcomes are reported in the Annex1_Site Visit Casalduni_05.04.23.

2 Background

The Casalduni WF (the "Project" or the "Wind Farm"), with a total capacity of 34.7 MW consisting of 10 Siemens-Gamesa¹ G132-3.465MW with a hub height of 114 m, received the EIA Decree on November 22, 2014 and has been authorized by the Campania Region according to the D.Lgs. 387/2003 ("Autorizzazione Unica" or "AU") on March 22, 2016. On November 27, 2019 by the AU Decree n.465, the Campania Region issued the Single Authorization for the Project as "Variante".

The Wind Farm is owned by Parco Eolico Casalduni House Srl (the "Project Company" or the "PC" or the "Client"), which in turn is owned by Renexia SpA (the "Sponsor").

In the 2018, Fichtner has been mandated for the lender's engineering activities for the benefit of each financial institution providing debt service to the Project Company according to their individual needs.

As informed by the Sponsor, the Project applied to the third auction in accordance with the DM July 4, 2019. The auction ranking results were published in September 2020. The Project was awarded a tariff of 66.84 €/MWh, corresponding to a 4.51% discount with respect to the threshold tariff of 70 €/MWh, assigned for 20 years starting from the Project COD.

In this framework new turbine supply and O&M contracts (TSA and ISP) have been signed with the WTG manufacturer Siemens Gamesa in December 2020.

Fichtner Italia ("Fichtner" or the "TA" or "LE"), mandated as lender's engineer, has been requested to provide a Construction Report related to the update status of the Project.

During this exercise, the TA has liaised with, or received information from, representatives of the following parties:

- Parco Eolico Casalduni House (PECH) as SPV;
- Renexia as Sponsor

¹ Siemens Gamesa Renewable Energy, or SGRE

3 Introduction

This report aims to provide the Lenders with the status of the main project construction activities for the Reference Period.

The works mainly consist of:

- Building and installation of 10 WTGs composed by 9 deep foundations (piles) and 1 foundation that transfers the load directly on the terrain, for a total installed power of 34.65 MW;
- Execution of the MV cable ducts;
- Construction of the MV/HV electrical substation (SSE);
- Construction of the HV cable duct connected with the RTN².

All the WTGs are located in Municipality of Casalduni, grouped into two clusters:

- WTG03, WTG04 and WTG05 belonging to the first cluster (south-east) and
- WTG08, WTG09, WTG10, WTG11, WTG13, WTG14 and WTG18 in second cluster (north-west).

The SSE is located in the Municipality of Pontelandolfo, nearly the existing RTN grid station.



Figure 3-1 – Layout of all WTGs and SSE

² “Rete elettrica di Trasmissione Nazionale”, High Voltage National Transmission Network

4 Contractual structure

The Project foresees a contractual structure, summarized in the following:

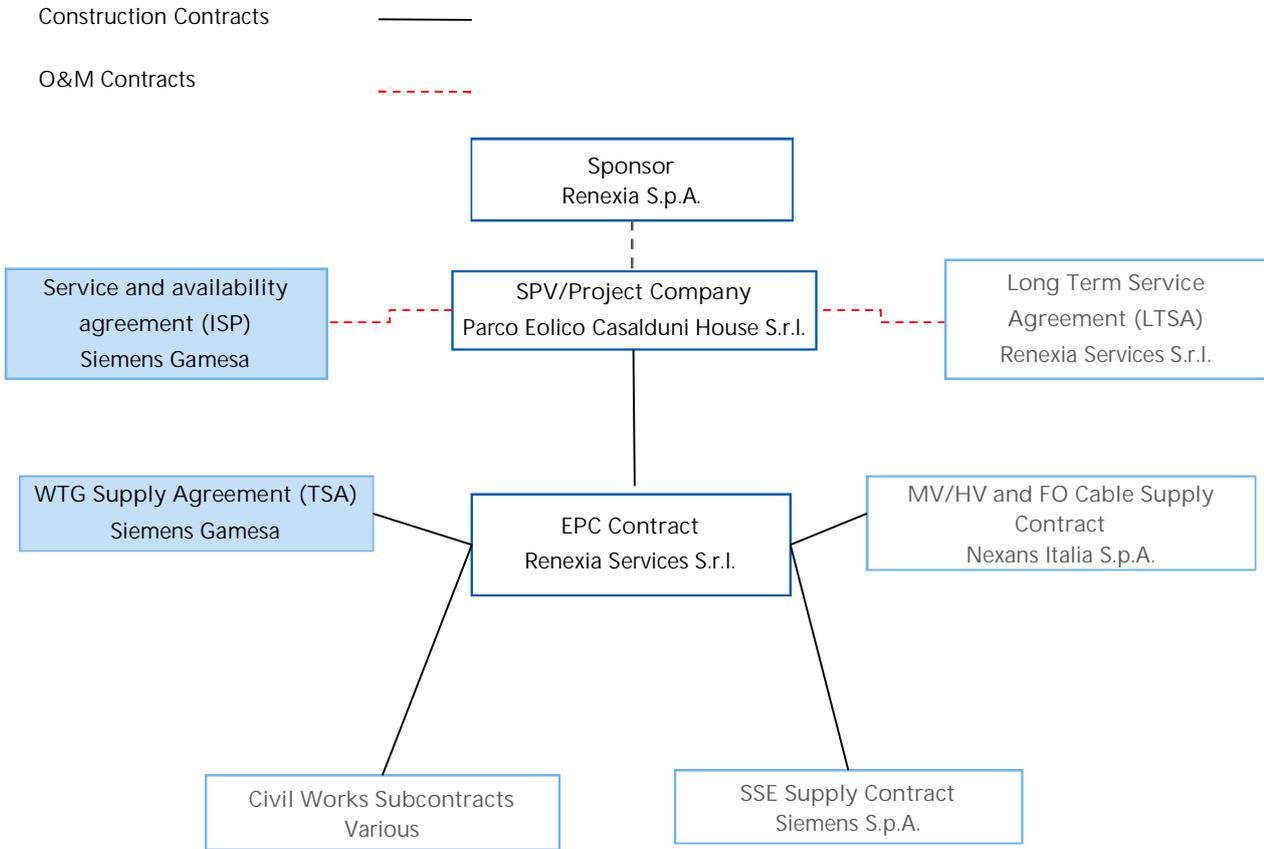


Table 4-1: Casalduni WTG Project Contracts

The new contractual scheme technically covers all the main activities related to the procurement, construction/erection/installation and testing of the Project. This structure will expose the EPC contractor to risks coming from their direct involvement on several responsibilities pertaining to transportation and WTG's towers supply and installation/testing.

4.1 Project Organizational Chart

The EPC Contractor Renexia Services S.r.l. has shared the following Organizational Chart highlighting the main roles and responsibilities of its resources during the Project execution:

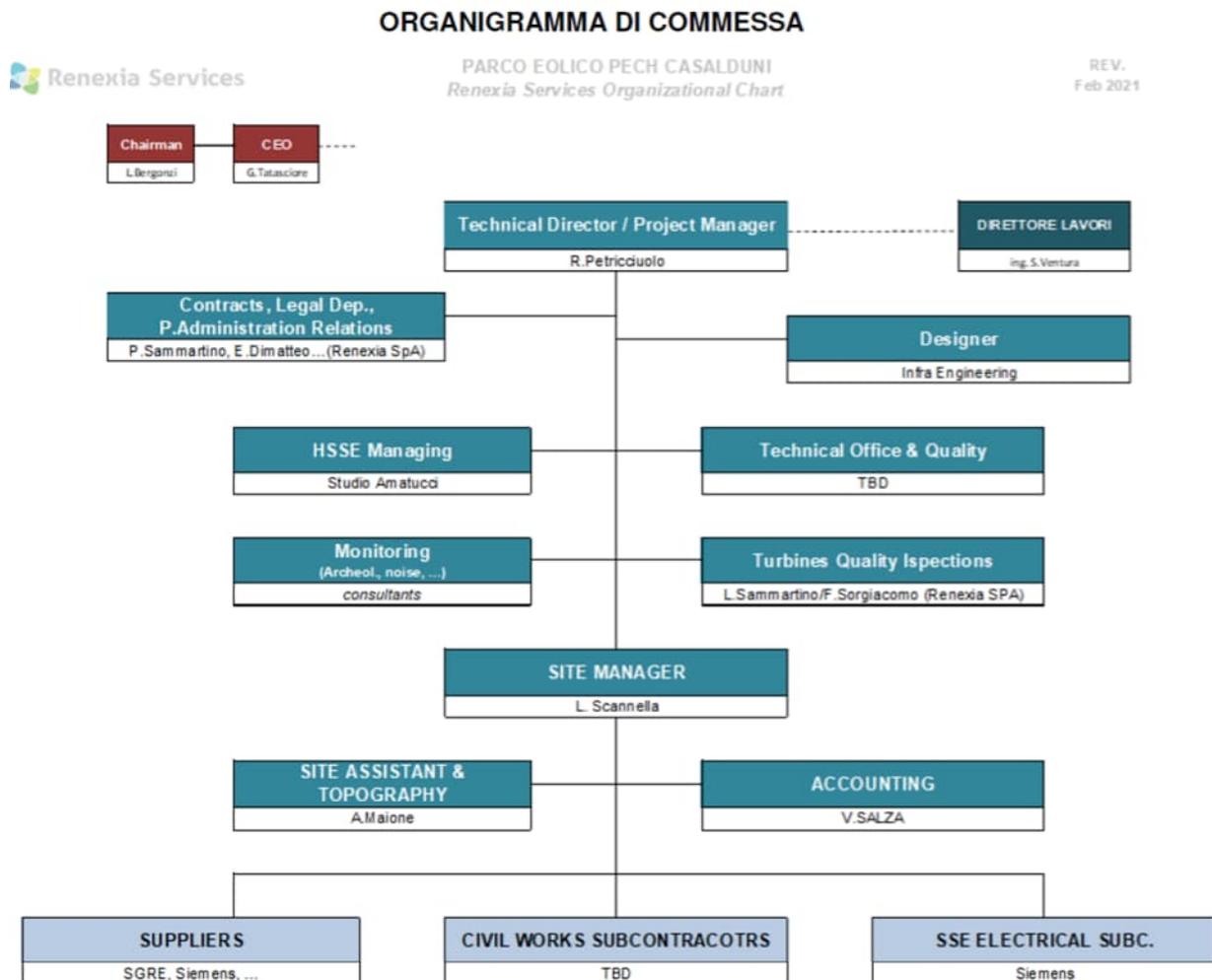


Table 4-2: Project Organizational Chart of EPC Contractor

This organisational structure is, in the TA's opinion, aligned with the industry standard.

5 Overall Project schedule

The dates of the construction milestones, reported in the overall project schedule of the Wind Farm provided to the TA at DD phase, are compared in the below table with the updated schedules.

Event	Planned Schedule [1]	Updated Schedule Oct 22 [2]	Updated Schedule Feb 23 [3]	TA's comments [4]
Construction Contracts	Done	Done	Done	The Notice to Proceed (NTP) signed in the mid of January 2021 between the EPC contract and the TSA (Siemens Gamesa).
UXO Survey	Partially Done	Done	Done	
Start of Site Works	In the mid of May 2021	May, 2022 [Delay: 12 months]	May, 2022 [Delay: 12 months]	Renexia started the Site Works on April 27, 2022.
WTGs delivery on site	From 09/09/2021 to 15/12/2021	December 2022 to February 2023 [Delay: 15 months]	February 2022 to May 2023 [Delay: 17 months]	The WTG blades are stocked in the Naples port. The installation kick-off started at the end of March 2023. Since the installation envisages a "Just-in-time" approach, the transportation is planned at the delivery on site of the whole set of the WTGs main components (Nacelles, Hubs and Towers) stocked in the port of Barletta. The works on site are proceeding in line with the schedule.
MV Cables delivery on site	31/03/2021	January 2023	February 2023	All MV and Fiber Optic cables were delivered at the Casalduni site at the end of March 2022. Renexia reordered about 40km of stored cable, burned due to vandalism. The delivery started during February 2023, with 1 month of delay compared to the previous schedule. The works on site are proceeding in line with the schedule.
WTGs foundation completion	6/10/2021	November 2022 [Delay: 13 months]	March 2023 [Delay: 17 months]	The WTGs foundation completion milestone was met on March 31, 2023.

Event	Planned Schedule [1]	Updated Schedule Oct 22 [2]	Updated Schedule Feb 23 [3]	TA's comments [4]
20/150kV SSE Energization	10/11/2021	February 2023 [Delay: 15 months]	May 2023 [Delay: 18 months]	The 20/150kV SSE Energization is scheduled for the end of May 2023, with 2 months of delay compared to the previously estimation.
MV Cables and F.O: installation	From 13/05/2021 to 27/10/2021	August 2022 to February 2023 [Delay: 16 months]	August 2022 to May 2023 [Delay: 16 months]	Carried out by Nexans Italia S.r.l. The activities started in August and due to the vandalism are currently on hold. The activities will restart after the new delivery, expected for February 2023 and will be completed by the beginning of May, with 3 months of delay compared to the previously estimation. The works on site are proceeding. A follow up by the TA is foreseen in order to evaluate potential delays.
WTGs Erection	15/12/2021	December 2022 to February 2023 [Delay: 11 months]	March to May 2023 [Delay: 14 months]	The erection of all WTGs started at the beginning of March 2023. The works on site are proceeding in line with the schedule.
Mechanical Completion WTGs	From 14/10/2021 to 19/01/2022	January to April 2023 [Delay: 16 months]	April to July 2023 [Delay: 19 months]	The WTGs Mechanical Completion is expected by July 2023, with 3 months of delay compared to the previously estimation.
WTGs Energization	From 16/12/2021 to 26/01/2022	March to May 2023 [Delay: 15 months]	May to July 2023 [Delay: 17 months]	The first WTG Energization is expected by the end of May 2023, with 2 months of delay compared to the previously estimation.
WTGs reliability tests	From 27/01/2022 to 23/03/2022	April to June 2023 [Delay: 15 months]	June to August 2023 [Delay: 17 months]	The reliability tests of the WTGs will start in June and completed by August 2023, with 2 months of delay compared to the previously estimation.
WTGs Take Over	From 17/03/2022 to 20/04/2022	June to July 2023 [Delay: 14 months]	July to September 2023 [Delay: 16 months]	The WTGs Take Over is foreseen to be finalized by September 2023, with 2 months of delay compared to the previously estimation.

Event	Planned Schedule [1]	Updated Schedule Oct 22 [2]	Updated Schedule Feb 23 [3]	TA's comments [4]
Wind Farm Take Over	27/04/2022	End of July 2023. [Delay: 12 months]	End of September 2023. [Delay: 14 months]	The Take Over is foreseen by the end of September 2023, with 1 month of delay compared to the previously estimation.

It is noted that the Updated Interconnection Date Deadline (April 20, 2022) and the Long Stop Date (July 31, 2022), as per definition in the Waiver of Terms and Conditions of the Notes dated October 4, 2021, were not met.

As per the Waiver request under evaluation by the Lenders, the Interconnection Date Deadline and the Long Stop Date must be extended to, respectively, May 31, 2023 and October 31, 2023, which are in line with the updated Project Schedule above reported.

The above schedule, however, would allow the Project to be guaranteed the awarded Tariff without any penalties: the deadline to avoid a 1% reduction on the awarded Tariff for the projects awarded in third auction (in accordance with the DM July 4, 2019), whose ranking results were published in September 2020, was extended by a total of 553 days, equal to the period included between the date of publication of the rankings (24/09/2020) and the expiration of the state of emergency declared by Resolution of the Council of Ministers of 31/01/2020, 29/07/2020, 07/10/2020, 13/01/2021, 21/04/2021, Decree Law No. 105/2021 and Decree Law No.221/2021 (31/03/2022). Considering the above the new deadline is June 30, 2023. Moreover, according to the D.L. n.21/2022 (Decreto Ucraina), the GSE has implemented the possibility of extending the end of work by 12 months, shifting the deadline for the tariff by the same period. The TA has been informed that PECH requested and obtained the extension, hence the new deadline is June 30, 2024³.

The conditions for eligibility to the FiT are: (i) energization of the first WTG and (ii) Erection of all WTGs., whose combined achievement is currently foreseen for the end of May 2023 as per latest available Schedule, which is going to be subject to variations as described above in this Section.

³ email communication on February 24, 2023.

6 Project Progress

In the Reference Period, March 2023 [4]:

- The transportation and installation kick-off started during the Reference Period: WTG 09 has completed the installation except for the blades; WTG 08, 10 and 11 installed until T3, all the component on site except for the blades; WTG 13 all the component on site except for the blades.
- During the Reference Period the pouring of the WTGs G05, G04 and G03 was done. Load test successfully completed on the second cluster of WTGs.
- MV cables installation is ongoing, during the Reference Period work was concentrated in the first section (1.7 km out of 8.1 km).
- The MV switchgears installation is planned in mid-April. Minor civil works in the SSE are ongoing at the date of the issuance of this report.

Project Progress

The updated progress for the project activities has been reported by the PC on a monthly basis, with the break-down below illustrated in the below tables.

Cod.	Description	Weight	PROGRESS Monthly Act.	PROGRESS Cumulat. Act.	Overall Progress
		[%]	[%]	[%]	[%]
A	Civil Works	10.9	7.6	92.8	10.1
B	SSE & Electrical Cables Procurement	7.1	6.3	93.3	6.7
C	WTGs Procurement & Installation	78.5	3.0	93.0	70.7
D	Design & Management	3.5	0.6	87.6	3.1
	TOTAL	100.0	3.6	92.8	92.8

Table 6-1: Break-down of EPC progress by activities

The overall weighted progress until today has been of 92.8%, with a monthly progress of 7.5%.

Cod.	Description	Weight	PROGRESS Monthly	PROGRESS Cumulat.	Overall Progress
		[%]	Act.	Act.	
			[%]	[%]	
A1	Concrete Supply - Foundation Plinths and Piles	18.0	16.8	100.0	18.0
A2	Inert Materials Supply	12.0	5.0	80.0	9.6
A3	Steel Supply - Foundation Plinths and Piles	20.0	5.4	100.0	20.0
A4	Earthmoving	18.0	2.0	97.6	17.6
A5	Foundation Piles Construction	3.0	0.0	100.0	3.0
A6	WTG Foundations	6.0	28.0	100.0	6.0
A7	Laying Fiber Optic Cables - including civil works	15.0	5.0	71.8	10.8
A8	Electrical Substation Civil Works	8.9	1.0	99.0	7.9
	Total	100.0	7.5	92.8	92.8

Table 6-2: Civil works progress detail

Cod.	Description	Weight	PROGRESS	PROGRESS	Overall Progress
		[%]	Monthly	Cumulat.	
			Act.	Act	
			[%]	[%]	
B1	Electrical Substation equipment Supply	70.0	9.0	99.0	69.3
B2	MV, FO and HV Cables Supply	30.0	0.0	80.0	24.0
Total		100.0	6.3	93.3	93.3

Table 6-3: SSE & Electrical Cables Procurement progress detail

Cod.	Description	Weight	PROGRESS	PROGRESS	Overall Progress
		[%]	Monthly	Cumulat.	
			Act.	Act	
			[%]	[%]	
C1	Notice to proceed	20.0	0.0	100.0	20.0
C2	Delivery on site Anchor Bolts	10.0	0.0	100.0	10.0
C3	Ex-Works Delivery	60.0	0.0	100.0	60.0
C4	Installation & Take Over	10.0	30.0 ⁴	30.0	3.0
Total		100.0	3.0	93.0	93.0

Table 6-4: WTGs Procurement & Installation progress detail

Cod.	Description	Weight	PROGRESS	PROGRESS	Overall Progress
		[%]	Monthly	Cumulat.	
			Act.	Act	
			[%]	[%]	
D1	Design & technical consulting	40.0	0.0	80.0	32.0
D2	Operations Management	60.0	1.0	92.7	55.6
Total		100.0	0.6	87.6	87.6

Table 6-5: Design & Management detail

⁴ Value adjusted by the TA base on the evidence raised during the site visit

7 Budget

The incurred construction costs, based on the EPC Contract milestones, are reported in the table below, as per the version of the schedule updated and approved at the beginning of February 2023 [3].

Month	SAL [k€]	%	Milestone
Milestones achieved			
4 July 2019	10,954.3	26.0%	Advance payment EPC
FY19	10,954.3	26.0%	
Dec-20	1,053.3	2.5%	WTG Contract/SSE Contract
FY20	1,053.3	2.5%	
Feb-21	632.0	1.5%	Cable Supply Contract
Jun-21	842.6	2.0%	Cables EXW
Jun-21	2,527.9	6.0%	Site Delivery Anchor bolts
Aug-21	8,426.4	20.0%	No. 5 WTGs EXW batch 1
Nov-21	8,005.1	19.0%	No. 5 WTGs EXW batch 2
Dec-21	1,264.0	3.0%	Transformer EXW
FY21	21,698.0	51.5%	
Aug-22	842.6	2.0%	Cables delivery on site
Dec-22	842.6	2.0%	WTG Foundation 50% completed
FY22	1,685.2.8	4.0%	
Mar-23	842.6	2.0%	Transformer delivery on site
Milestones not yet achieved			
Mar-23	842.6	2.0%	WTG Foundation 100% completed
May-23	842.6	2.0%	SSE Energization/Mechanical completion
Sep-23	4,213.2	10.0%	Provisional Acceptance Certificate
FY23	6741.0	16.0%	

Tabella 7-1: EPC Contract Milestones status

The TA confirms that the “WTG Foundation 100% completed” milestone has technically occurred, and the relevant milestone payment from Renexia Services as EPC contractor has been made on March 28, 2023 (see also LT 23 077_F454 - Casalduni WF_n.13 Draw Down Certificate-signed. dated March 31, 2023).

8 Permitting and Lands rights

An updated status of the authorization process and events occurred in the Reference Period, related to permits and land rights, is provided in the following.

8.1 Permitting

Nothing to report in the Reference Period.

8.2 Lands rights

Nothing to report in the Reference Period.

9 HSE

The TA is not aware of any HSE issue in the Reference Period.

No HSE reports have been provided to the TA.

10 Site Visit

During the site visit performed by the TA on April 05, 2023 no relevant risks have been noted. The main outcomes are reported in the Annex1_Site Visit Casalduni_05.04.23.

11 Pictures

Some selected pictures of the site works and materials delivery, as shared by the Sponsor [4], are provided in this section.



Figure 11-1 - WTG G09 installation



Figure 11-2 - WTG G08 installation



Figure 11-3 - WTG G03 foundation poured

Key References

Doc. Ref.	Title	File Name	Version / Date
1	Time schedule	Renexia Services P.E.C.H. – Programme nov2020.pdf	February 23, 2021
2	Project Schedule updated, October 2022	Renexia Services P.E.C.H.- Programme ott2022.pdf	October 07, 2022
3	Project Schedule updated, February 2023	Revised Draft Timetable.xlsm Casalduni - Energization Programme.pdf	February 06, 2023 February 10, 2023
4	Construction Report March 2023	20230331_report costruzione Casalduni clean.pdf	April 03, 2023

Abbreviations

BOP	Balance of Plant
CAPEX	Capital Expenditures
COD	Commercial Operation Date
EPC	Engineering Procurement and Construction
EXW	EX Works (<i>Franco Fabbrica</i>)
HV	High Voltage
IEC	International Electrotechnical Commission
kW	Kilowatt
kWh	Kilowatt-hour
LD	Liquidated Damage
LV	Low Voltage
MCR	Major Components Replacement
MLA	Mandated Lead Arranger
MP	Monopile
MW	Megawatt (1,000 kW)
MWh	Megawatt-hour (1,000 kWh)
MV	Medium Voltage
O&M	Operation and Maintenance
PC	Project Company
RTN	<i>"Rete elettrica di Trasmissione Nazionale"</i> , High Voltage National Transmission Network
SCADA	Supervision Control and Data Acquisition
SSE	<i>"Sotto-stazione Elettrica"</i> , electrical substation
TA	Technical Advisor
TOC	Take Over Certificate
VAT	Value Added Tax
WF	Wind Farm
WTG	Wind Turbine Generator